



HEAT PUMP SPECIFICATIONS

**For more information, go to the website:
www.siddonssolarstream.com**

**For installation video, go to:
www.siddonssolarstream.com/installation**

To be read in conjunction with the:

- **Installation and User Manual**
- **Product Brochure**

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Notice

1.1 In order to use this product better and safer, please read this instruction carefully before install and operate it. Please pay attention to all the notice in operation and maintenance. Save all manuals and documentation for future reference.

1.2 Air to water pump is a special appliance. Improper installation will cause damage and danger. It should be installed and maintained by the professionals. Please contact our authorized local service point for installation and maintenance. Please read and follow this instruction carefully before and during installation.

1.3 Please check whether the distribution power capacity, switch and socket are compliance with the requirements of our unit power. Details please refer to the rating label or parameter table in this manual.

1.4 The power should be equipped with leakage protection separately. Power cable should be chosen in accordance with the operation requirements of the unit.

1.5 The unit must be grounded safely. Do not use the unit if grounded unsafely. Do not connect the ground line to the neutral and or tap water pipe.

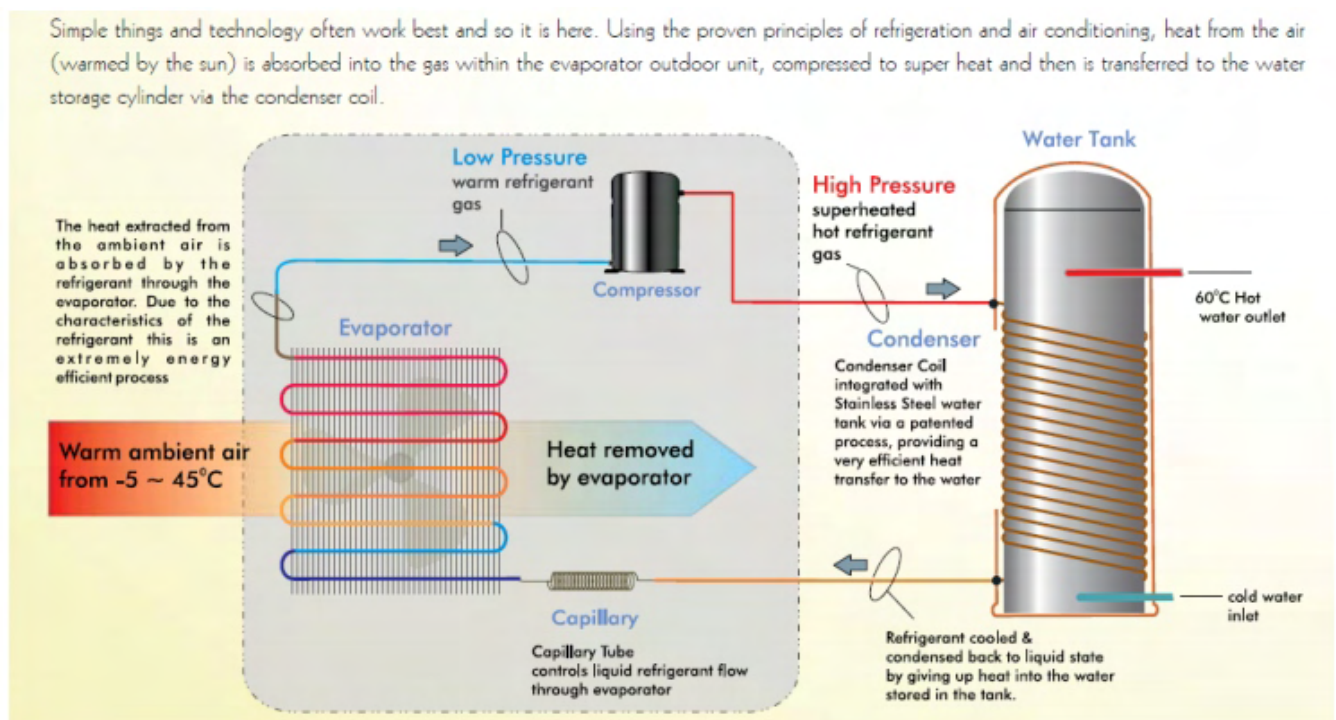
1.6 The wire must be joined in compliance with the requirements of the wiring chart. Do not alternate and or repair the unit personally.

1.7 Do not install the unit closed to inflammable, explosive and naked light spot.

1.8 To ensure the unit operate properly, please equipped with a filter in the water input when installation.

I、 General

1. How it works



2. Stainless Steel Water Tank

Siddons Solarstream features a marine grade (316) stainless steel water tank for longer life without the need for sacrificial anodes. Anodes are required for mild steel water tanks and should be changed periodically in order to achieve reasonable water tank life.

Weight of the 327 litre water tank is just 73kg, much less than a glass lined steel water tank of the same volume capacity; the 264 litre tank weighs 62kg.

The condenser coils wraps around the outside of the tank and the patented heat transfer system delivers a broad, gentle heating over the whole surface of the tank resisting mineral deposits on the heating surface and this maintains the efficiency of the heating surface for life.

The refrigerant in the condenser coils on the outside of the tank walls is kept completely away from the potable water inside the water tank; there is no chance of mishap.

3. Flexible and Accessible Split System

The split system allows design flexible options in installation and is easily accessible for servicing. Installations may vary from the side by side configuration of heat pump and water tank to placement of the heat pump up to 9 metres distant from the water tank including up to 3 metres above such as installation of the heat pump on a roof with water tank on the ground.

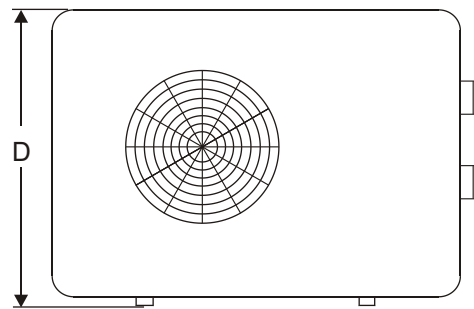
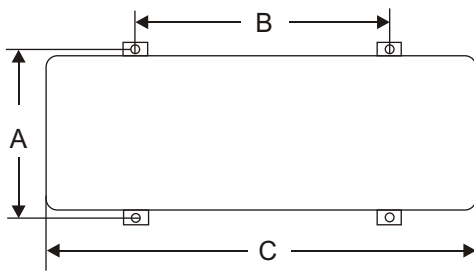
Both the Water Tank and the Heat Pump come pre-charged with refrigerant gas. Pre-charging ensures the correct refrigeration charge is in the system from the factory.

II、Heat Pump

1. Technical parameter for the main unit

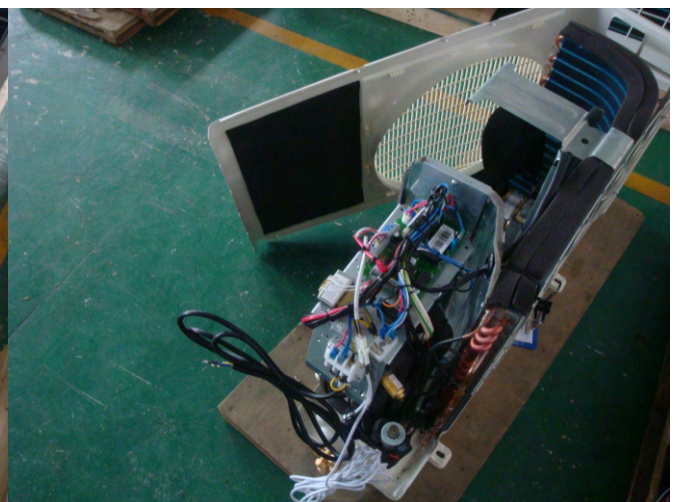
MODEL			MAHRW015WAA
COOLING	RATED CAPACITY	W	3500
	RATED CURRENT	A	4.7
	RATED POWER INPUT	W	1080
	EER	WW	3.15
	STAR RATING		4.5
HEATING	HEATING CAPACITY	W	3500
	RATED CURRENT	A	4.5
	RATED POWER INPUT	W	1020
	EER	WW	3.2
	STAR RATING		4
POWER SUPPLY		Ph/V/Hz	1/~220-240/50
MAX OPERATION CURRENT		A	10.2
NOISE LEVEL INDOOR/OUTDOOR		dB(A)	53
VOLUMETRIC CAPACITY		m ³ /h	620
DEHUMIDIFICATION CAPACITY		L/h	1.5
REFRIGERANT TYPE/CHARGE		/(g)	R134a /1500(g)
INDOOR/OUTDOOR UNIT DIMENSION (mm)	W		780
	D		258
	H		540
NET WEIGHT INDOOR/OUTDOOR		Kg	10/40
CONNECTION PIPE SIZE mm(inch)	LIQUID		6.35(1/4)
	GAS		9.52(3/8)
COMPRESSOR TYPE			Rotary
LCD REMOTE CONTROL			Y
TEMPERATURE SETTING RANGE		°C	16-30
OPERATION MODES			4
FAN SPEEDS			3
24-HOUR ON/OFF TIMER			Y
UP/DOWN LOUVER			Automatic
LEFT/RIGHT LOUVER			Manual
HI-POWER			Y
SLEEP MODE			Y
DRY MODE			Y
LED DISPLAY ON FRONT PANEL			Y
SOFT START			N
APPLICATION AREA*		M ²	18-30
Compressor	brand		Mitsubishi
	model		TB36G

2. Current Heat Pump version



Units: mm

Size \ MAHRW	015WAA
A	280
B	505
C	805
D	542



The heat comes apart easily. Firstly remove the lid, then the case can be opened by undoing the screws. The box is insulated for sound attenuation.

3. Heat Pump checks

Flare Nuts

Ensure the flare nuts are tight, use two spanners and apply pressure, one spanner countering the force of the other.



Compressor Sitting Squarely



This image shows the Heat Pump without the casing revealing the compressor.

Note the compressor sits in a tray under its own weight and can occasionally shift its alignment during transit and/or installation.

If there is any metallic vibrating or rattling sound present, try shifting the compressor with your hands to ensure it squarely seated in the tray.

III、 Technical Guid

1. Starting Current and Peak Current

When the Heat Pump starts up for the first time, when the tank has cold water, the power input will be approximately $700 \text{ watts} / 220 \text{ volts} = 3.1 \text{ amps}$. The current will gradually rise over the heating cycle until it reaches the maximum power input of $1.38 \text{ kw} / 220 \text{ volts} = 6.2 \text{ amps}$, just before the thermostat cuts out the Heat Pump compressor. The power input ranges between 0.8 kw to 1.38 kw , 1.1 kw average, and will produce Heat Output of 3.3 kw at 20 deg C and 4.4 kw at 30 deg C ambient temperature at lower humidity.

2. Electrical wiring

The unit should use dedicated power supply, power supply voltage line corresponding with rated voltage.

The unit power cable must use copper cable, the cable diameter must ensure that the unit's maximum starting current requirements.

The unit power supply circuit must have a grounding wire, which should connect with a reliable external ground wire, and the external ground wire is effective.

Wiring construction must be installed by professional technicians refer to circuit diagram.

Power lines and signal line layout should be neat, rational, strong and weak lines separate and can not interfere with each other, while not contacted with the connecting pipe and the valve body.

When power lines and control lines parallel, the wires were placed in each tube, also leave appropriate distance between the lines.

Unit electric wire connection: take the unit power line, remote control three core lines, electric heater power line, solar circulated water pump control power line, water tank temperature sensing line, solar collector temperature sensor line, terminal equipments connect to unit lines, through the unit wiring hole set into the electrical box, connect to the appropriate terminals according to wiring diagram, and fix it by the pressure line of board in the electrical box.

Unit control panel Code MK4068, Fuse specifications: 5A/250V.

Electric wire selection

Mode	Host Power	Phase line	Zero line	Ground line	Max.line length (m)	Signal line	Tem. sensor assistance line	Max.line length (m)
MAHRW015WAA	220V/1PH/50Hz	1.5mm ²	1.5mm ²	1.5mm ²	15	0.5mm ²	0.5mm ²	50

Note: 1. used PVC insulated copper wire for above wiring

2. for installation requires, the line is longer than the maximum line length, please contact the company.

3. Gas Levels and Pressures

The Split System comes pre-charged with the following gas levels:

For standard side by side system: 1.5 kg made up of Gas type: R22, R417a, R438a or R134a

The high pressure hot gas line will start at around 1,100 kPa at 20 deg C and lower in colder temperatures, such as 900kPa at 10 deg C, and reach around 2,600 kPa at cut out temperature (60 deg C water temp) irrespective of the ambient temperature.

4. Electronic expansion valve

Household air-conditioning electronic expansion valve is mainly applied in air-conditioning system, to automatically control refrigerant flowrate, thus to make air-conditioning system work in the best situation.

IV、Use

1. Mounting and fixing method of the remote controller:

The remote controller is designed and employed standard electrical box dimensions(86*86, fixed hole distance 60mm). The electrical box and three core can be built in the wall before decoration, which makes the interior decoration more perfect. The illustration shows as below:

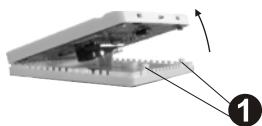


Illustration 1

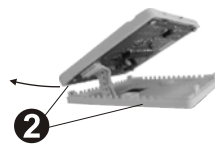


Illustration 2

- ❶ Use a flat screwdriver to press down the two tabs and lift open the face covering.

- ❷ Remove the top covering leftwards to disengage two top tabs.

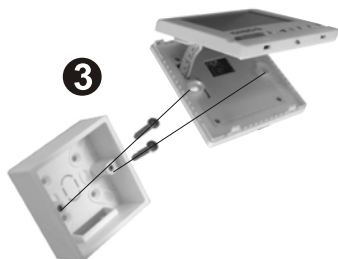


Illustration 3



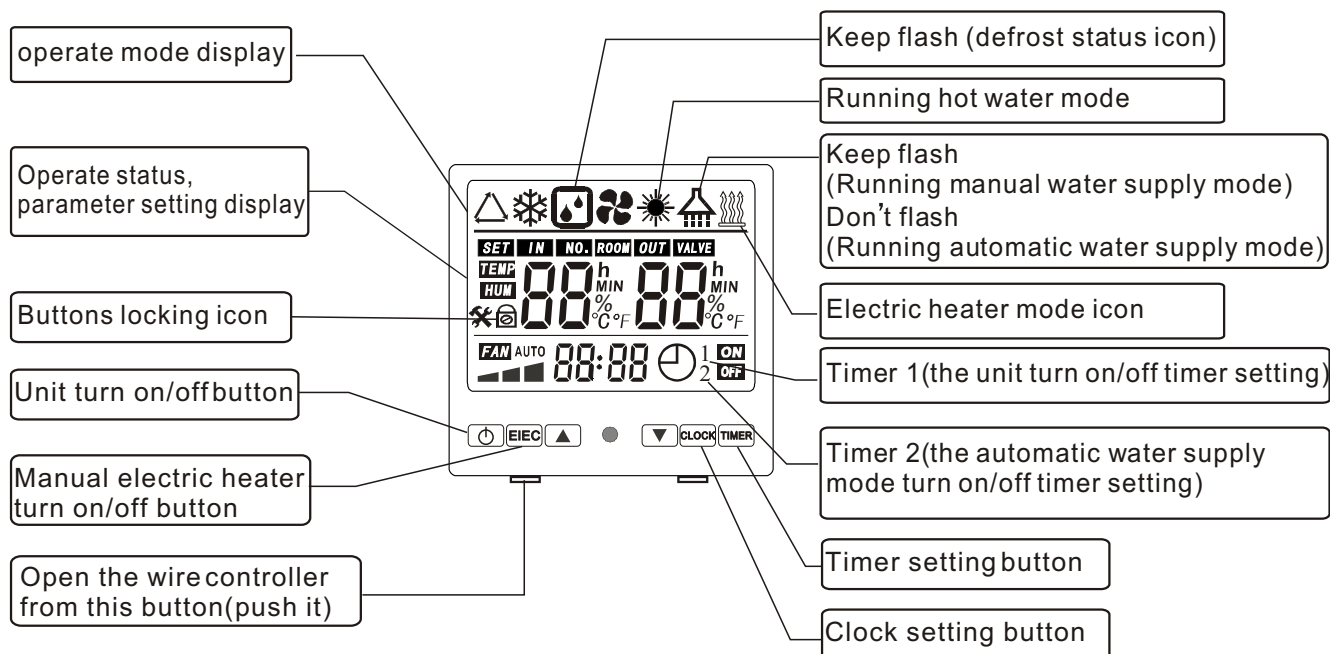
Illustration 4

- ❸ Put the Digital controller into the base box and tighten the two setting screws.

- ❹ Complete the installation by pressing the Digital Controller down firmly to reengage the tabs.

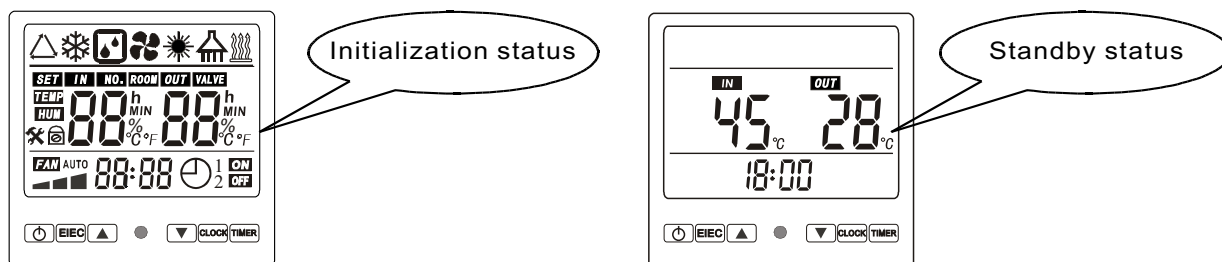
2. Use of remote controller

2.1 The user interface and function shows as below:



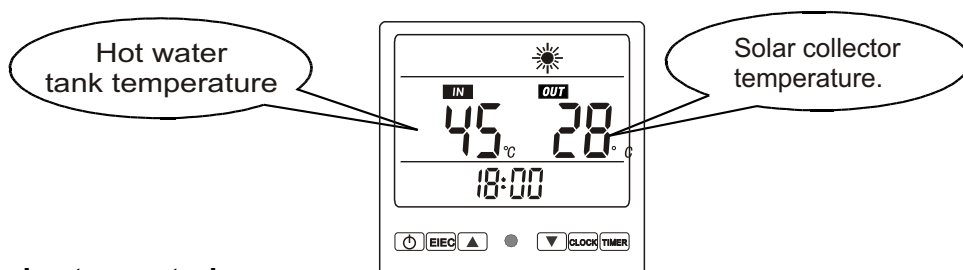
2.2 Initial power on and stand by status

Power on after check and confirm the unit is normal. The remote controller will be full-screen display. The main unit will be on stand by status 10 seconds later. Distance will display the standby.



2.3 ON/OFF control

ON/OFF button. Press this button to power on and off. In the ON mode, the remote controller displays the operation mode, clock, timing status, bottom of water tank temperature and ambient temperature. Notice: When the unit power on at first time, there's no 3 minutes turning on delay. Other time, there's the 3 minutes turning on delay.

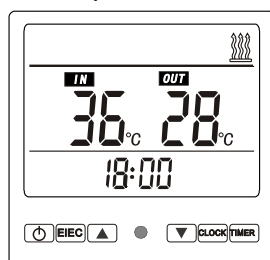


2.4 Electric heater control

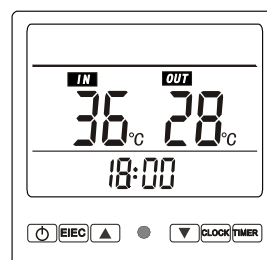
There are two mode of electric heater control, one is independent electric heater mode, another is auxiliary electric heater mode under the hot water mode.

A: Independent electric heater mode:

under the turn off status, press the button, you can turn on the independent electric heater mode the sign of display on the interface like the picture 1. press the button again turn off the independent electric heater mode like the picture 2.



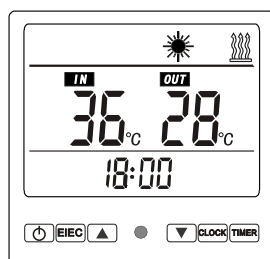
picture 1



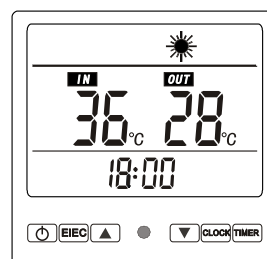
picture 2

B: Auxiliary electric heater mode:

under the turn on status, press the button, you can turn on the auxiliary electric heater mode, the sign of display on the interface like the picture 1. When the delay time which is begin when you turn on the unit is longer than the parameter of 3 setting, the electric heater signal will output. Press the button again turn off the auxiliary electric heater mode like the picture 2.



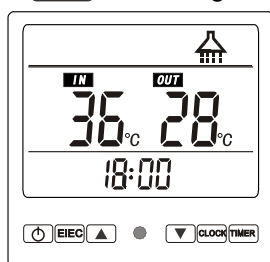
picture 1



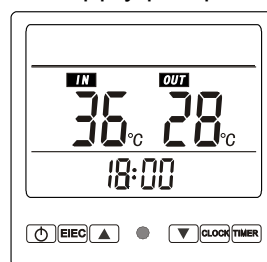
picture 2

2.5 Turn on/off the water supply pump by manually.

Press the **COLCK** button, you can turn on the water supply pump, the sign of  display on the interface like the picture 1. Press the **COLCK** button again turn off the water supply pump like the picture 2.



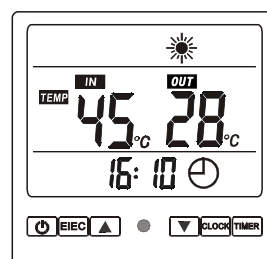
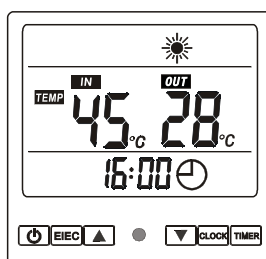
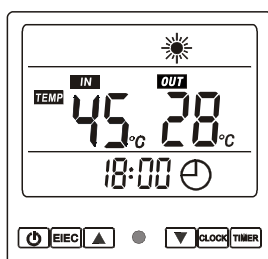
picture 1



picture 2

2.6 Clock setting

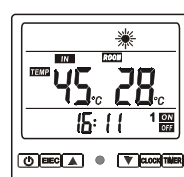
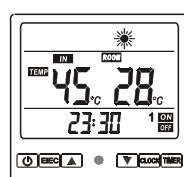
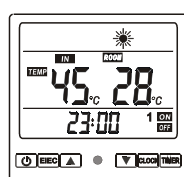
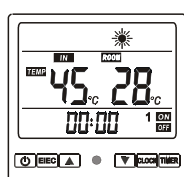
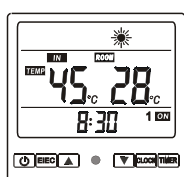
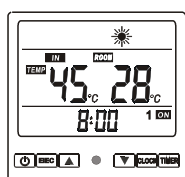
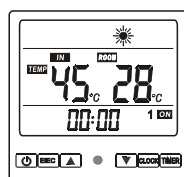
Under power on or stand by status, press **COLCK** to adjust clock. The hour and minute bit flicker at that time. Press again **COLCK** the hour bit flicker. Use **▲** **▼** to adjust hour. Press **COLCK** again. The minute bit flicker again. Use **▲** **▼** to adjust minute. Press **COLCK** again to quit clock adjustment.



2.7 Timer 1 ON/OFF setting

Press **TIMER** button for hour, minutes and timing. The ON symbol flickers. Press **TIMER** again, now the hour display flickers. Press the **▲** **▼** button to adjust the setting of the hour. Press **TIMER** button again, and the minute display flickers. Press **▲** **▼** buttons to adjust the minute setting. Press **TIMER** button again and the hour and timer OFF symbol flickers. Press **TIMER** again and the hour display flickers, press **▲** **▼** button to adjust the hour setting. Press **TIMER** button again, and the minute display flickers. Press **▲** **▼** buttons to adjust the minute setting. Press **TIMER** button, then exit the timer ON/OFF setting. The following example shows the heat pump set to turn on at 8:30 every morning, and turn off at 23:30 every night.

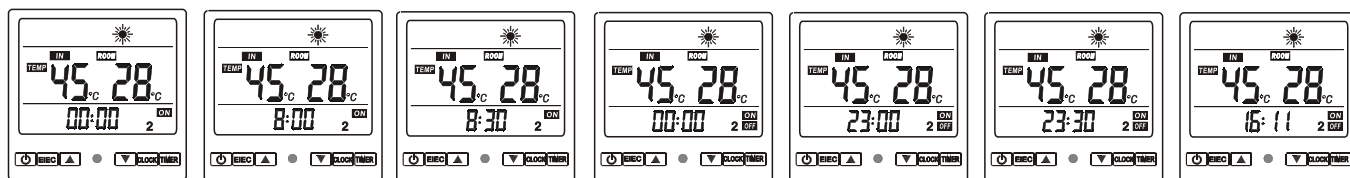
(Timing 1 is the unit's timing ON/OFF)



2.8 Setting of timing hot water supply (timing 2)

Press **TIMER** 5s for hour, minutes and timing. The ON symbol flickers. Press **TIMER** again, now the hour display flickers. Press the **▲** **▼** button to adjust the setting of the hour. Press **TIMER** button again, and the minute display flickers. Press **▲** **▼** buttons to adjust the minute setting. Press **TIMER** button again and the hour and timer OFF symbol flickers. Press **TIMER** again and the hour display flickers, press **▲** **▼** button to adjust the hour setting. Press **TIMER** button again, and the minute display flickers. Press **▲** **▼** buttons to adjust the minute setting. Press **TIMER** button, then exit the timer ON/OFF setting. The following example shows the heat pump set to turn on at 8:30 every morning, and turn off at 23:30 every night.

(Timing 2 is the hot water supply timing ON/OFF)



2.9 Cancellation of timing setting operation

Press **[TIMER]** button and press **[CLOCK]** button to cancel the timing 1.

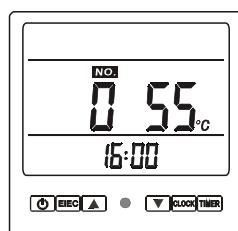
Press **[TIMER]** 5 seconds and press **[CLOCK]** button to cancel the timing 2.

2.10 Parameter setting

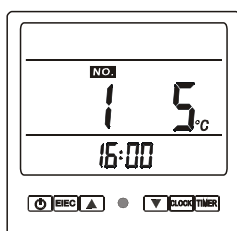
In the standby mode, press key **[▲]** **[▼]** to enter the browsing interface and can see the parameters of 0-17/A/b/c/d/E/F, then choose the parameters you want to modify, and press the key **[ON]** and **[ELEC]** at the same time to enter the interface of parameters modifying, then press the key **[▲]** **[▼]** to modify the corresponding parameter value, then press the **[ON]** and **[ELEC]** at the same time for confirm the modification .

Note: 1. All the parameters could not be modified under boot-up state and just can be modified under standby mode.

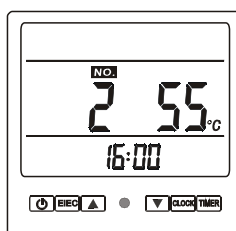
In the operation, if stop operation for 10 seconds, then quit Settings.



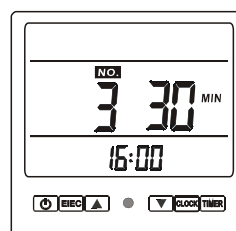
Parameter 0
Domestic hot water
tank temperature
Alternative range: 10°C to 60°C.
Default: 55°C



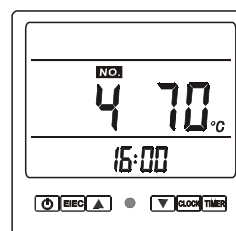
Parameter 1
Domestic hot water ,the
compressor restart difference
temperature
Alternative range: 2°C to 15°C.
Default: 5°C



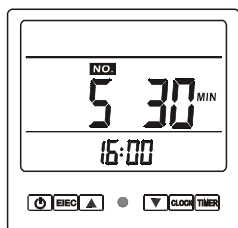
Parameter 2
Not applicable on this
model



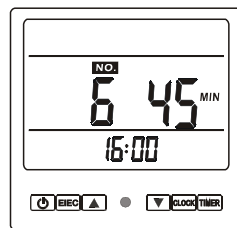
Parameter 3
Not applicable on this
model



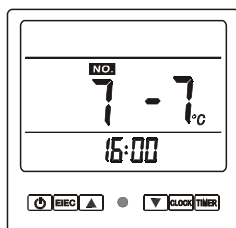
Parameter 4
Not applicable on this
model



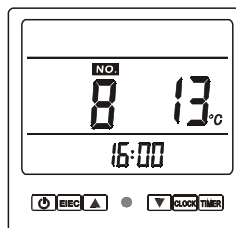
Parameter 5
Not applicable on this
model



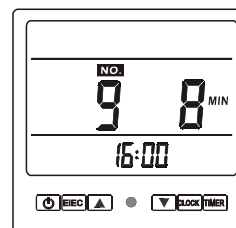
Parameter 6
Defrost cycle
Alternative range: 30 to
90 min.
Default: 45 min



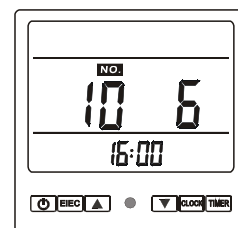
Parameter 7
Enter defrost temperature
Alternative range: -30°C to 0°C.
Default: -7°C



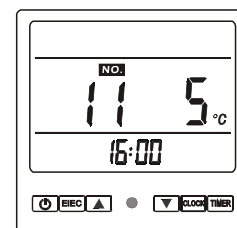
Parameter 8
Exit defrost temperature
Alternative range: 2°C to 30°C.
Default: 13°C



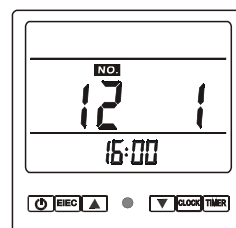
Parameter 9
Exit defrost time condition
Alternative range: 1 to 12 min.
Default: 8 min



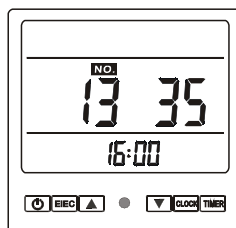
Parameter 10
Not applicable on this
model



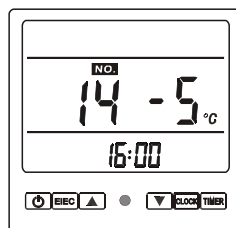
Parameter 11
The Target superheat
temp. Alternative
range: -F(-15)°C to F(15)°C.
default setting: 5°C



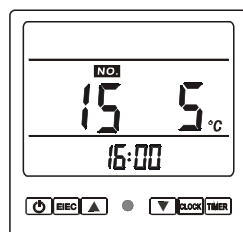
Parameter 12
Electronic expansion valves
control the selection
0: manual control
1: automatic control
default setting: 1



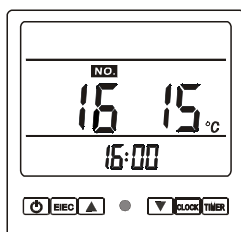
Parameter 13
The electric expansion
valve operation step setting
for the manual control style
default setting :35
(measure valve=35*10)



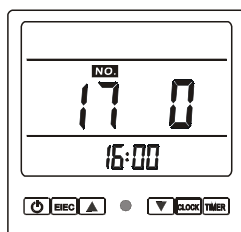
Parameter 14
The ambient setting for the
electronic expansion valves turn
back to the manual control style
Alternative range: -F(15)°C to 0°C.
Default: -5°C



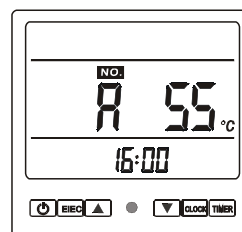
Parameter15:
Not applicable on this model



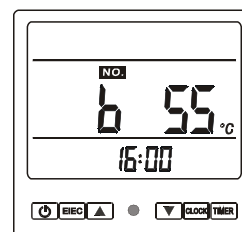
Parameter16: The ambient temp.setting for the unit enter the ambient temp. Too low protection Alternative range: -30℃ to 0℃ Default: -15℃ (The minus sign can not display)



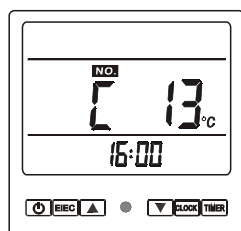
Parameter17: The paramter is set for recovering refrigerant or adding refrigerant 0:The unit normal running 1:The unit enter recovering or adding refrigerant mode Default: 0 ①



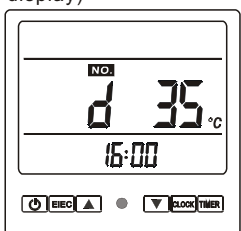
Parameter A: Hot water tank temperature Alternative range: -9℃ to 99℃ Actual testing value



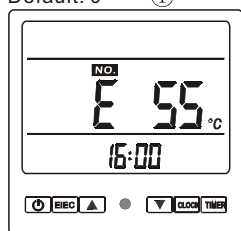
Parameter b:
Not applicable on this model



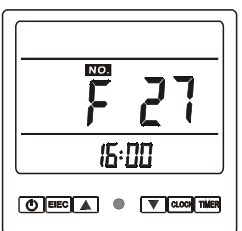
Parameter C:
System coil temperature Alternative range: -9℃ to 99℃ Actual testing value



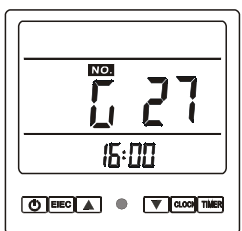
Parameter d:
System suction temperature Alternative range: -9℃ to 99℃ Actual testing value



Parameter E:
Not applicable on this model



Parameter F:
Ambient temperature Alternative range: -9℃ to 99℃ Actual testing value



Parameter G:
The electric expansion valve opening Alternative range: 15*10 ~ 35*10 Actual testing value

⚠ Note:① After recovering refrigerant or adding refrigerant,you must reset the paramter 17 to 0,or else the unit can not heating.

3. Operation data setting

The unit's operation data can be set on the wire controller.

Please set according to the table below.

Parameter	Content description	range	default	Adjust
0	Domestic hot water tank temperature setting	10 ~ 60℃	55℃	Adjustable
1	Tank temperature difference value for the compressor restart setting	2 ~ 15℃	5℃	Adjusted by technicians
2	The hot water tank temperature setting of auxiliary electric heater mode ①	10 ~ 90℃	55℃	Not applicable
3	Electric heating start time delay the time after the unit turn on ①	0 ~ 90	30	Not applicable
4	The temp. of start high-temperature disinfection per week setting ①	60 ~ 90℃	70℃	Not applicable
5	High-temperature disinfection maintain time	0 ~ 90 min	30 min	Not applicable
6	Defrost cycle setting	30 ~ 90 min	45 min	Adjusted by technicians
7	Enter defrost temperature setting	-30 ~ 0℃	-7℃	Adjusted by technicians
8	Exit defrost temperature setting	2 ~ 30℃	13℃	Adjusted by technicians
9	Exit defrost max. time cycle setting	1 ~ 12 min	8 min	Adjusted by technicians
10	Difference temp. Value between solar and tank for Solar pump start setting ②	1~20℃	6	Not applicable
11	The target superheat temperature setting for the electric expansion valve.	-F(15) ~ F(15)℃	5℃	Adjusted by technicians
12	The control style selection of the electronic expansion valve	0: manual control 1:automatic control	1	Adjusted by technicians
13	The electric expansion operation step setting for the electric expansion manual control style	15*10 ~ 35*10	(35*10)	Adjusted by technicians
14	The ambient setting for the ele.c expansion valve turn back to the manual control style	-F(15) ~ F(15)℃	-5℃	Adjusted by technicians
15	The ambient temp.setting for turn on the EVI valve	-F(15) ~ F(15)℃	5℃	Not applicable

16	The ambient temp.setting for the unit enter the ambient temp.too low protection	-30℃~0℃	15℃ ③	Adjusted by technicians
17	The paramteris set for recovering old refrigerant or adding new refrigerant	0: normal running 1: recover or add refrigerant	0	Adjusted by technicians
A	Hot water tank temperature	-9 ~ 99℃		Actual testing value
B	Water outlet temperature	-9 ~ 99℃		Actual testing value
C	System coil temperature	-9 ~ 99℃		Actual testing value
D	System suction temperature ②	-9 ~ 99℃		Actual testing value
E	Solar collector temperature	-9 ~ 99℃		Not applicable
F	Ambient temperature	-9 ~ 99℃		Actual testing value
G	The electric expansion valve opening	15*10 ~ 35*10		Actual testing value

Note:

①:is just apply to the heat pump with Aux. electric heater.

②:Is just apply to the heat pump with Solar collector.

③ :The minus sign can't display.

In the operation, if you stop operating for 10 seconds, it will log out automatically.

V、Maintenance and repair

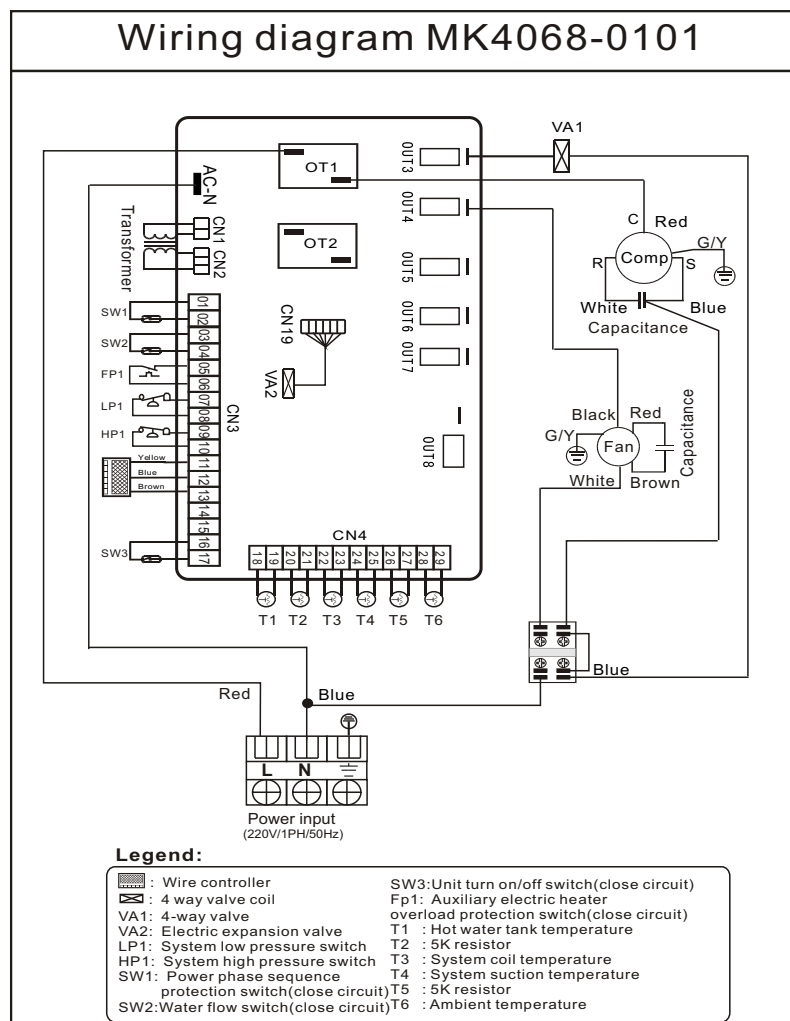
Malfunction Indicating Table. Determine and solve the malfuncion by malfuncion code as below:

Fault code	Malfunction and Protection Name	Solution
	Standby	
	Normal start	
PP1	Hot water tank temp. Sensor failure	1.Check whether the temperature thermistor of the bottom of the water tank is connected loose or not . 2.Connect temperature thermistor of the bottom of the water tank tight or change the temperature thermistor.
PP2	Water outlet temp.Sensor failure	1. Check whether the temperature thermistor of the upper part of the water tank is connected loose or not . 2. Connect temperature thermistor of the upper part of the water tank tight or change the temperature thermistor.
PP3	System coil temp. Sensor failure	1. Check whether the temperature thermistor of the coil is connected loose or not . 2. Connect temperature thermistor of coil tight or change the temperature thermistor.
PP4	System suction temp. sensor failure	1. Check whether the exhaust temperature thermistor is connected loose or not . 2. Connect exhaust temperature thermistor tight or change the exhaust temperature thermistor.
PP5	Solar collector temp. sensor failure	1. Check whether the temperature thermistor of the solar collector is connected loose or not . 2. Connect temperature thermistor of the solar collector tight or change the temperature thermistor.
PP6	Ambient temp. sensor failure	1. Check whether the ambient temperature thermistor is connected loose or not . 2. Connect ambient temperature thermistor tight or change the ambient temperature thermistor
PP7	Water flow protection	1:Check whether lack of water in the system, or cycle heating system pipe exist air and need discharge the air. 2:check the waterflow volume water pump is failure or not.

EE1	System high pressure protection	Check whether lack of water in the system, or cycle heating system pipe exist air and need discharge the air ,or the water temperature is too high or the refrigerant is too much or high pressure switch has been damaged.
EE2	System low pressure protection	The system lack of refrigerant or the low pressure switch has been damaged.
EE3	aux. electric heater overheat protection	The aux. electric heater is broken ,so the unit make overheat protection. (only effective to the unit with auxiliary electrical heater) (lack of water protection)
EE4	Power phase sequence protection	Check whether the three phase power supply is normal or not, whether the phase is lose or the phase sequence is error. Whether the running current is large than the standard current, check the ac.contactor connection is normal or not.
	Unit defrosting status	System is running defrost program.
EE8	Communication failure	Communication wires disconnect or Connection Error.

VI、Wiring diagram

Wiring diagram MK4068-0101 effective for the mode of MAHRW015WAA



CODE:MK4068-01

AIR TO WATER HEAT PUMP